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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/755,330	01/05/2001	J. Michael Weaver	0275D-000289	5073

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EXAMINER

FLETCHER, MARLON T

ART UNIT	PAPER NUMBER
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2837

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/755,330

Applicant(s)

WEAVER ET AL.

Examiner

Marlon T Fletcher

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 40-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 40-43 and 46-49 is/are rejected.
- 7) ☒ Claim(s) 44 and 45 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 7, 10, 40, 41, 46, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by De Cesare (4,883,997).

As recited in claims 1 and 40, De Cesare discloses a brushless DC motor, comprising; a rotor assembly (18) including a rotatable shaft having a permanent magnet affixed to the shaft; a plurality of coils (24a and 24b) for producing a magnetic field for applying a torque to the rotor assembly, said coils including end turns that enclose the rotor assembly such that the rotor assembly is not removable; a stator stack (12, 14) made of a stator magnetic material for providing a magnetic flux return path; and a seal applied to the interface being adapted to seal the air gap such that the air gap is blocked off as discussed in column 6, lines 51-62, wherein the coils seal the gap.

As recited in claim 2, De Cesare discloses the DC motor, further comprising a winding form (118) being configured to receive the plurality of coils.

As recited in claim 7, De Cesare discloses the DC motor, wherein the coils are layer wound as seen in figure 1.

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As recited in claim 10, De Cesare discloses the DC motor, wherein the permanent magnet is magnetized after the plurality of coils are wound as discussed in column 6, lines 35-62.

As recited in claim 41, De Cesare discloses the DC motor, wherein the encapsulated stator further includes a winding form (118) that encircles the rotor assembly such that an air gap is maintained between the winding form (118) and the rotor assembly, the winding form (118) being configured to receive the plurality of coils (figure 17).

As recited in claims 46 and 47, De Cesare inherently discloses the DC motor, wherein the seal is formed from a compliant material; wherein said coils include end turns that enclose the rotor assembly such that the rotor assembly is not removable (figure1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 4, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Cesare.

De Cesare is discussed above. De Cesare does not disclose a tube and a

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plurality of teeth.

However, with respect to claims 3, 4, 42, and 43, Official Notice is taken with respect to it being well known in the art to provide a winding form which further includes a tube, a plurality of teeth.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the well known teachings, with De Cesare, because it merely provides another design for applying the coils over the coil form.

5. Claims 5, 6, 9, 48 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeCesare in view of von der Heide et al. (5,382,853).

De Cesare is discussed above. De Cesare do not disclose the delta or Wye Configuration, nor sensor.

However, as recited in claims 5, 6, 48, and 49, von der Heide et al. disclose the DC motor, wherein the coils are wound in a three phase winding configuration selected from the group of: delta configuration and wye configuration as discussed in column 7, lines 29-31.

As recited in claim 9, von der Heide et al. disclose the DC motor, further comprising a position sensor system selected from the group comprised of: Hall effect sensors (42-44) and leakage flux sensors as discussed in column 4, lines 56-68.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of von der Heide et al. with the apparatus of De Cesare, because the teachings provide the use of different wiring configurations to

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enhance the invention, and further provide sensors for providing position or flux leakage, wherein all provide enhancement.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Cesare in view of Nashiki (6,252,325) .

De Cesare is discussed above. De Cesare does not disclose silicon steel.

However as recited in claims 8, Nashiki disclose the DC motor, wherein the stator magnetic material is a laminated silicon steel as discussed in column 8, lines 5-6.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Nashiki with the apparatus of De Cesare, because is provides enhanced durable material.

7. Claims 11 and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over von der Heide et al. in view of De Cesare.

As recited in claim 11, von der Heide et al. disclose a brushless DC motor, comprising: a rotor assembly including a rotatable shaft and a permanent magnet affixed to the shaft, said permanent magnet for generating a magnetic field as discussed in column 3, lines 58-60 and column 4, lines 1-3; wherein said coils are connected in a three phase delta configuration having a positional relationship with the permanent magnet as discussed in column 7, lines 29-31; a stator stack (10) made of a stator magnetic material for providing a magnetic flux return path for the magnetic field of the permanent magnet; a position sensor system (42-44) for sensing the positional

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relationship that the coils have with the permanent magnet; and a controller (41, 45) coupled to the position sensor for controlling the application of a power source to the coils in response to the positional relationship of the coils and the permanent magnet.

As recited in claim 9, von der Heide et al. disclose the DC motor, further comprising a position sensor system selected from the group comprised of: Hall effect sensors (42-44) and leakage flux sensors as discussed in column 4, lines 56-68.

Von der Heide et al. do not disclose a winding form enclosing the rotor assembly.

However, De Cesare discloses a winding form (118) enclosing the rotor assembly; a plurality of coils (24a and 24b) wound upon the winding form for producing a magnetic field for applying a torque to the rotor assembly, said coils including end turns that enclose the rotor assembly such that the rotor assembly is not removable (figure 1).

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of De Cesare with the apparatus von der Heide et al., because the teachings provide enhancement and better torque control over the rotor.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over von der Heide et al. in view of De Cesare as applied to claims 11 and 13 above, and further in view of Nashiki.

von der Heide et al. and De Cesare are discussed above. Neither reference discloses silicon steel.

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However, Nashiki disclose the DC motor, wherein the stator magnetic material is a laminated silicon steel as discussed in column 8, lines 5-6.

It would have been obvious to one of ordinary skill in the art at the time of the invention to utilize the teachings of Nashiki with the apparatus von der Heide et al. in view of De Cesare, because it provides enhanced durable material.

Allowable Subject Matter

9. Claims 44-45 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marlon T Fletcher whose telephone number is 703-308-0848. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Nappi can be reached on 703-308-3370. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.


Marlon T. Fletcher
Primary Examiner
Art Unit 2837

MTF
June 13, 2003